

REMARKS

Summary of Claim Status

Claims 2-8 are pending in the present application after entry of the present amendment. Claims 9-16 are withdrawn. Claims 2, 7, and 8 are rejected for the reasons discussed below. Claims 3-6 are objected to as depending from a rejected base claim, but indicated as allowable if properly rewritten in independent form.

Applicants respectfully request favorable reconsideration of the claims and withdrawal of the pending rejections and objections in view of the present amendment and in light of the following discussion.

Restriction Requirement

The present application is subject to a restriction requirement, the Office Action stating: "Newly submitted claims 9-16 directed to an invention that is independent or distinct from the invention originally claimed." Office Action at p. 3, ¶ 5. In response to the requirement, Applicants withdraw Claims 9-16 from consideration, and affirm the constructive election of Claims 2-8 for examination, with traverse. The Office Action states that inventions a (corresponding to Claims 2-8) and b (corresponding to Claims 9-16) are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that the combination as claimed does not require the particulars of the subcombination as claimed for patentability. See, MPEP § 806.05(c). The Office Action further states: "In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because group a does not require storing plurality of decryption keys and storing configuration data in configuration memory of the PLD." Office Action at p.5, ¶ 7. Applicants respectfully disagree.

Applicants respectfully submit that inventions a and b are in fact related as subcombination and combination, respectively, and not combination and subcombination as suggested by the Examiner. Furthermore, the elements of the combination (group b) are similar to the elements of the subcombination (group a).

Thus, the Examiner's reasoning is inapplicable to the present case. That is, the combination (group b) does require the particulars of the subcombination (group a), and therefore the restriction is not proper. Applicants respectfully request reconsideration and withdrawal of the restriction requirement, and reinstatement of Claims 9-16. In the alternative, Applicants reserve the right to resubmit Claims 9-16 in a divisional or continuing application, without prejudice.

Rejections Under 35 U.S.C. § 112

Claims 2 and 8 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. Specifically, the Examiner stated: "The phrase 'disabling the PLD . . .' is misleading, technically the PLDs can not be disabled, only all or some of the designed logic functions in configuration bitstream are prohibited to implement." Office Action at p. 2, ¶ 4. Applicants respectfully disagree with the Examiner. In particular, Applicants respectfully submit that the Examiner's reasoning is incorrect, and moreover, Applicants believe the claim language as originally presented is not misleading. First, PLDs, just as almost any other electrical device, can be disabled through a variety of mechanisms. Moreover, the original claim language of Claim 2 recited "disabling the PLD from being partially reconfigured." That is, the Examiner's rejection is inapplicable since the Applicants did not claim disabling the PLD, but rather disabling the PLD from being partially reconfigured. Thus, Applicants submit that the language of Claim 2 is clear in specifying that a particular aspect of a PLD is disabled. Therefore, Applicants believe Claim 2 satisfies the requirements of 35 U.S.C. § 112. Claim 8 recites a similar element, and thus Applicants believe Claim 8 also satisfies the requirements of 35 U.S.C. § 112.

Notwithstanding the foregoing, Applicants have voluntarily amended Claims 2 and 8 to restate the features in equivalent language, merely for the purposes of advancing prosecution, and not for reasons relating to patentability. In particular, Claim 2, as amended, recites "disabling partial reconfiguration of the PLD," and Claim 8, as amended, recites "means for disabling partial reconfiguration of the

PLD.” Therefore, Applicants respectfully request withdrawal of the § 112 rejections.

Rejections Under 35 U.S.C. § 103

Claims 2, 7, and 8 rejected under 35 U.S.C. § 103(a) as being unpatentable over Kean, U.S. Patent Application Publication No. 2001/0015919 (“Kean”). Applicants respectfully disagree and traverse the rejection with respect to all claims.

The Office Action admits that “Kean does not explicitly disclose disabling the PLD from being partially reconfigured.” Office Action at p. 4, ¶ 10. The Office Action further states, with respect to Claims 2 and 8:

However, Kean discloses a field programmable gate array which supports partial reconfiguration may be programmed by a sequence of bitstream fragments, each bitstream fragments can be loaded and verified independently and would have its own cryptographic checksum (page 10, paragraph [0135]). Kean also discloses each encrypted bittream will have a different initial value applied so this does not compromise security (page 10, paragraph [0136]). This concept of preventing attach would be implemented to disallow partial reconfiguration once configuration with decryption is started.

It would have been obvious to one of ordinary skill in the art at the time of the invention to employ the use of disabling PLD from being partially reconfigured as disclosed in Kean so as to protect proprietary configuration data for PLDs.

Office Action at pp. 4-5, ¶ 10. Applicants, however, submit that Kean does not teach or suggest disabling partial reconfiguration of a PLD, and thus it would not have been obvious to one of ordinary skill in the art to modify Kean in the manner suggested by the Examiner.

Nowhere in Kean is it even mentioned, much less disclosed or suggested, that partial reconfiguration of a PLD may be disabled. In fact, Kean actually teaches away from disabling partial reconfiguration of a PLD. Kean states: “An FPGA which supports partial reconfiguration may be programmed by a sequence of bitstream fragments,” and specifically notes that with “dynamic reconfiguration

some areas of the device may be configured more than once.” Kean at ¶ [0135]. Kean further notes that “each bitstream fragment can be loaded and verified independently.” Id. That is, Kean provides for an FPGA to be partially reconfigured with several bitstream fragments. The fragments are loaded independently and the device can be configured more than once. Thus, Kean teaches away from disabling partial reconfiguration of a PLD, which would not allow for partial reconfiguration with several bitstream fragments.

In contrast, Claim 2 recites disabling partial reconfiguration of a PLD. As explained in the present application, it may be possible to attack a PLD by using partial reconfiguration to load a Trojan Horse design whose only purpose is to extract information about the encrypted design. Specification at p. 34, line 26 – p. 35, line 9. Thus, it is desirable to disable partial reconfiguration to prevent malicious code from being loaded on the device. Kean does not disclose or even suggest disabling partial reconfiguration. Quite the contrary, Kean in fact teaches and encourages partial reconfiguration using a sequence of bitstream fragments. This system of Kean would allow malicious code to be loaded on a PLD.

Therefore, since Kean does not teach or even suggest disabling partial reconfiguration of a PLD, Applicants believe Claim 2 is allowable, and allowance of Claim 2 is respectfully requested.

Claim 7 depends from Claim 2, and thus includes all of the limitations of Claim 2. Applicants believe Claim 2 is allowable for the reasons set forth above. Therefore, for at least the same reasons, Applicants believe Claim 7 is also allowable, and respectfully request allowance of Claim 7.

Claim 8 recites means for disabling partial reconfiguration of a PLD. As explained by the remarks above with respect to Claim 2, Kean does not teach or even suggest such a feature. Therefore, Applicants believe Claim 8 is also allowable, and allowance of Claim 8 is respectfully requested.

Objections

Claims 3-6 are objected to as being dependent from a rejected base claim, but indicated as otherwise allowable. Applicants thank the Examiner for this acknowledgement of allowable subject matter.

Applicants believe that all rejections have been overcome by the above amendments and that these objections are now moot. In particular, Claims 3-6 depend from Claim 2, and thus include all of the limitations of Claim 2. Applicants believe Claim 2 is allowable for the reasons set forth above. Therefore, for at least the same reasons, Applicants believe Claims 3-6 are also allowable, and respectfully request allowance of Claims 3-6.

Claims 9-16

Claim 9 recites disabling partial reconfiguration of a PLD in response to decryption of a configuration bitstream. Claim 13 recites means for disabling partial reconfiguration of a PLD in response to decryption of a configuration bitstream. Claim 14 recites a configuration circuit adapted to disable partial reconfiguration of a PLD. As explained above with respect to Claim 2, Kean does not teach or even suggest disabling partial reconfiguration, and in fact teaches away from such a feature. Therefore, Applicants believe Claims 9, 13, and 14, and Claims 10-12 and 15-16 which depend therefrom, are also allowable. Applicants respectfully request allowance of Claims 9-16 if the restriction requirement is withdrawn.

Conclusion

No new matter has been introduced by any of the above amendments. In light of the above amendments and remarks, Applicants believe that Claims 2-8 are in condition for allowance, and allowance of the application is therefore requested. If action other than allowance is contemplated by the Examiner, the Examiner is respectfully requested to telephone Applicants' attorney, Justin Liu, at 408-879-4641.

Respectfully submitted,

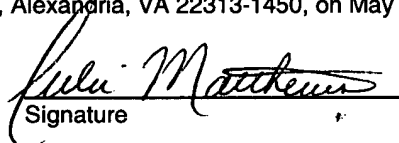


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I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Commissioner for Patents, P.O. BOX 1450, Alexandria, VA 22313-1450, on May 16, 2005.

Julie Matthews

Name


Signature